

## **IMPLANTABLE DEVICES AND METHODS USING FREQUENCY-DOMAIN ANALYSIS OF THORACIC SIGNAL**

### **ABSTRACT**

5           This document describes, among other things, systems, devices, and methods  
that use frequency domain analysis of a thoracic signal. One example uses  
frequency domain analysis for discriminating between different pulmonary  
physiological states. Examples of breathing states include normal breathing,  
periodic breathing, Cheyne-Stokes breathing, obstructed respiration, restrictive  
10   respiration, and pulmonary edema. The frequency domain analysis may also be used  
for performing heart rate variability (HRV) diagnostics. In one example, a  
frequency domain adaptive filter implements a variable cutoff frequency for  
separating heart contraction spectral content and other spectral content from lower  
frequency respiration spectral content and other lower frequency spectral content.

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